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## CHROMOSOMES OF SPIRAEA AND OF CERTAIN OTHER GENERA OF ROSACEAE

J. T. BALDWIN, JR.

CHROMOSOME numbers determined for various American—and one introduced—representatives of Rosaceae are recorded in Table I. Only plants of known geographic source are included. Counts were readily made from leaf smears. Diploid, tetraploid, and hexaploid expressions of a 9-series were found. Species previously in the chromosomal literature are discussed; others are merely listed in the table. Specimens collected by the author and cited are in the herbaria of U. S. National Arboretum and of the Smithsonian Institution. Those collected by Clover and Jotter are in the Herbarium of the University of Michigan.

### SPIRAEA

*Spiraea*, a genus of about fifty species in the temperate zone of the northern hemisphere (Willis, 1948), is, of course, an assemblage of considerable horticultural importance. The relatively



TABLE I

	2n	COLLECTOR & No.
<i>Spiraea alba</i> Du Roi		
Virginia		
Fauquier Co.: near Paris	36	Baldwin 5603
Maryland		
Garrett Co.: Backbone Mountain	36	Baldwin 5650
West Virginia		
Grant Co.: Mount Storm	36	Baldwin 5645
Preston Co.: Masontown	36	Baldwin s. n.
Tucker Co.: Thomas	36	Baldwin s. n.
<i>Spiraea latifolia</i> (Ait.) Borkh., var. <i>septentrionalis</i> Fernald		
Virginia		
Page Co.: Hawksbill Mountain	54	Baldwin 5464, 5601
<i>Spiraea tomentosa</i> L., forma <i>albiflora</i> Macbr.		
Pennsylvania		
Crawford Co.: near Meadville	36	A. Lorz s. n.
<i>Spiraea japonica</i> L. f.		
Virginia		
Clarke Co.: near Paris	36	Baldwin 5668
<i>Spiraea corymbosa</i> Raf.		
Virginia		
Rappahannock Co.: Skyline Drive	36	Baldwin 5630
Warren Co.: Skyline Drive	36	Baldwin 5627
<i>Physocarpus opulifolius</i> (L.) Maxim.		
Virginia		
Clarke Co.: along Shenandoah River	18	Baldwin s. n.
Frederick Co.: Gore	18	Baldwin 5653
West Virginia		
Hampshire Co.: Romney	18	Baldwin 5654
Preston Co.: Masontown	18	Baldwin s. n.
<i>Gillenia trifoliata</i> (L.) Moench		
Virginia		
Clarke Co.: near Paris	18	Baldwin 5667
Rappahannock Co.: Skyline Drive	18	Baldwin 5632
Warren Co.: Skyline Drive	18	Baldwin 5633
Maryland		
Garrett Co.: Oakland	18	Baldwin 5640
West Virginia		
Grant Co.: Gormanian	18	Baldwin s. n.
Hampshire Co.: Romney	18	Baldwin 5642
<i>Neviusia alabamensis</i> Gray		
Alabama		
Tuscaloosa Co.: near Tuscaloosa	18	Baldwin s. n.
<i>Fallugia paradoxa</i> (D. Don) Endl.		
Arizona: 26 miles below Lee's Ferry*	18	E. U. Clover & L. Jotter 2225
<i>Cowania Stansburiana</i> Torr.		
Arizona: Hermit Creek*	18	E. U. Clover & L. Jotter 2303A

\* See map in Clover and Jotter (1941).

few chromosomal data now available for the genus indicate that a cytogeographic survey of *Spiraea* should be made: many problems in evolution would doubtless be thereby resolved; plants of significant value for breeding would probably be discovered. An example illustrates the point. Sax (1936) stated



that *S. corymbosa* has been used in making several interspecific hybrids and that this species "is a triploid with complete pollen sterility. It must form viable egg cells or exist in a fertile diploid form . . ." Perhaps diploid representatives do exist in *S. corymbosa*. Tetraploid ones do: along the Skyline Drive in Virginia the species is tetraploid. This information affords basis for interpreting certain of the artificial hybrids to which Sax referred. Existence of polyploidy within species makes it possible to build up a long series of horticultural plants.

Six species, two varieties, and one form of *Spiraea* are included in the eighth edition of Gray's Manual. Of the species only *S. virginiana* has not been cytologically studied.

Sax (1936) and the present author have found *S. alba* to be tetraploid. But, as stated above, Sax found *S. corymbosa* to be triploid, not tetraploid as reported here. And he found *S. japonica* to be diploid, and not tetraploid as it is in Clarke County, Virginia, where the species has become naturalized. Sax found *S. latifolia* to be tetraploid; its variety *septentrionalis* in Virginia (Baldwin, 1946) is hexaploid. *S. tomentosa* var. *alba* West as published by Bowden (1945) with an  $n$ -number of 18 and *S. tomentosa* forma *albiflora* given here with  $2n = 36$  are designations of the same collection.

Hexaploidy in *Spiraea* is seemingly infrequent. Sax (1936) stated that *S. myrtilloides*, an Old World species, is hexaploid and that *S. Billiardii*, an artificial hybrid of two American species, may be hexaploid. The present author found a pink-spiked plant of undetermined identity cultivated at The Blandy Experimental Farm, Boyce, Virginia, to be hexaploid. *S. latifolia* var. *septentrionalis* atop Hawksbill Mountain, Page County, Virginia, is hexaploid. This variety likewise occurs "on the Labrador Peninsula and in Newfoundland and south to the Magdalen Islands and subalpine and alpine regions of Mt. Katahdin, Maine, and the White Mountains, New Hampshire, also on Keweenaw Peninsula, Michigan" (see Baldwin, 1946). Cytological examination of plants from some of these northern stations would be of phyletic interest.

#### PHYSOCARPUS AND NEVIUSIA

Sax (1931) reported an  $n$ -number of 9 for four species of *Physocarpus*, *P. intermedius* being among the four. This species



is included in the new Gray's Manual as var. *intermedius* of *P. opulifolius*; only *P. opulifolius* and this variety are recognized for the manual range. Sax (1931) recorded for *Neviusia alabamensis* an *n*-number of 8 but later (1932) stated that apparently the correct *n*-number is 9. The *2n*-number of 18 given in Table I for this monotypic genus corroborates Sax's second report.

COLLEGE OF WILLIAM AND MARY,  
WILLIAMSBURG, VIRGINIA

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ERRONEOUS RECORD OF *BORRICHIA FRUTESCENS* FROM DISTRICT OF COLUMBIA.—In the 8th edition of Gray's Manual (p. 1487. 1950) the range of the sea-ox-eye, *Borrichia frutescens* (L.) DC., is given as "borders of saline or brackish marshes, Florida to Texas and Mexico, north to eastern Virginia, and Anacostia River, D. C. July-Oct. (Bermuda)." (The abbreviations in the text here extended.) The species had never previously been reported from the District of Columbia region, and this record of an essentially maritime species so far up the Potomac River system as the Anacostia River was so remarkable as to arouse doubt as to its authenticity. Dr. Reed C. Rollins, to whom I applied for information, wrote me that there was a sheet in the Gray Herbarium labeled as follows: "Marsh along Anacostia River above Benning, District of Columbia, Aug. 28, 1925, *E. T. Wherry & F. W. Pennell 12417*." This seemed definite enough, but the question still remained how the plant, which is entirely